Wisconsin Department of Health and Family Services

Pharmacy NewsCapsule

Division of Disability and Elder Services/Bureau of Quality Assurance(BQA) Jan/Feb/Mar 2005

Tuberculosis

Latent (noninfectious) versus Active (disease/infectious)

By Sharon Weisenberger, Pharm D Candidate, UW-Madison

In the United States, with the exception of HIV+ infected people, the highest incidence of tuberculosis (TB) occurs in people 65 years and older. People 65 years and older have four times the risk of TB than the general population, and eight times the risk when residing in a nursing home.

In addition, the case rate of TB for nursing home employees is three times that for other adult employees of the same age, race, and sex. It is estimated that in the US there are two million people employed in 16,700 nursing homes housing 1.6 million residents.

Most TB-infected people do not develop a clinical illness and are usually asymptomatic and noninfectious (latent TB). The only proof of infection is a positive Tuberculin Skin Test. In the US, it is estimated that 10-15 million people have latent TB infection.

It is estimated that 10-15% of primary (latent) TB infection progresses to active disease. This is especially the case in high-risk populations, e.g., people with diabetes mellitus and nursing home residents. Symptoms of active pulmonary TB are a cough that lasts longer than two weeks, fatigue, weight loss, anorexia, low-grade fever, hemoptysis (coughing blood), and night sweats.

Tuberculin Skin Test (TST)

The Mantoux test is the recommended tuberculin skin test. Multiple puncture device (tine) tuberculin tests are no longer used in high-risk populations because they are less accurate and have a higher false-negative rate than the Mantoux test.

The Mantoux Test is administered as follows. Five tuberculin units (0.1 mL) of purified protein derivative are injected intradermally, typically about four inches below the elbow. The injection site is interpreted 48-72 hours

Continued on page 3

Inside This Issue

PHARMACY STUDENT

My name is Sharon Weisenberger, a fourth year pharmacy student, completing my rotation at the Bureau of Quality Assurance. My past experiences have been in the community setting, both retail and clinical. The experience at BQA has provided me with new insights into the challenges faced by elderly Wisconsin residents in long term care settings. I have also been exposed to the complexities of our legal system and the impact legal decisions have on pharmacy practice.

I would like to take this opportunity to thank Doug and everyone at the Bureau for making this a memorable and valuable experience. I have learned to value the services provided by the State, and the importance of the legislative process.

New Drugs

By Sharon Weisenberger, Pharm D Candidate

Brand Name	Generic Name	Use
Apidra®	insulin glulisine	Rapid-acting insulin
Omacor®	omega-3 acid ethyl esters	Rx only Reduce TG levels
Lunesta®	eszopiclone	Non-benzodiazepine for treatment of Insomnia
New Dosage Forms		
Menostar®	estradiol	Low strength for treatment of postmenopausal osteoporosis
Zyprexa ®Intra Muscular	olanzapine	IM formulation for treatment of agitation (Schizophrenia or mania)
Iquix®	levofloxacin	1.5% ophthalmic drops – treatment of corneal ulcers

Medication Errors- Reminyl® & Amaryl®

Sharon Weisengerber, Pharm D Candidate

Reminyl® (galantine) is used in the treatment of mild to moderate dementia of Alzheimer's disease and is available in 4 mg, 8 mg and 12 mg tablets. Dosing of Reminyl in adults is initially 4 mg twice daily x 4 weeks, given with breakfast and dinner, increasing by 4 mg in 4-week intervals with a maximum dose of 12 mg twice daily.

Amaryl® (glimepiride) is used in the treatment of NIDDM (non-insulin dependent diabetes mellitus) and is available in 1 mg, 2 mg and 4 mg tablets. Dosing of Amaryl® is initially 1-2 mg once daily (with breakfast); usual maintenance dose is 1-4 mg once daily with MAX dose of 8 mg daily.

Medication errors have occurred with Amaryl® being dispensed instead of Reminyl®. This has caused severe hypoglycemia for the recipients of the incorrect medication and has contributed to one death. It is expected that Reminyl will soon be marketed under a new name to avoid similar future errors involving these two medications.

Focus Drug of the Month

By Sharon Weisenberger, Pharm D Candidate

Valproic Acid (VPA) and derivatives Depakene®, Depakote®, Depakote Sprinkles®, Depakote® ER, Depakon®

Valproic acid and derivatives (divalproex sodium, valproate sodium) are anticonvulsives approved for use in seizure disorders (complex partial, complex absence and multiple seizure types), as well as migraine prophylaxis. Unlabelled use of VPA is for behavior disorders associated with dementia associated with Alzheimer's disease and status epilepticus.

For seizure disorders, doses can range from 1000-2500 mg a day in divided doses (exception Depakote® ER is once daily dosing). The usual dosage range for migraine is 500-1000 mg daily. For behavior disorders (agitation and aggression) associated with Alzheimer's disease, the dosage range will be 250-1000 mg daily.

VPA exerts its effect on the neurotransmitter GAMA (gamma aminobutyric acid). Therefore, a common side effect is sedation. Other common side effects may include nausea, vomiting, abdominal pain, diarrhea, anorexia, and weight gain/loss.

To decrease GI effects, the medication should be administered with food and plenty of water.

Continued page 3

Continued from page 1 Tuberculosis

after administration. Only the induration (firmness, hardness) is measured, not the erythema. A positive test is determined by the size of the induration in millimeters and the risk category for the individual. For most individuals in BQA-regulated facilities, an induration of 10 mm indicates a positive test. However, please refer to www.cdc.gov/mmwr/PDF/rr/rr4411.pdf, page 24, table 1, for guidance on skin testing results. PLEASE REMEMBER A POSITIVE SKIN TEST DOES NOT MEAN "ACTIVE TB," but that INFECTION IS PRESENT, and that further evaluation is necessary.

Treatment: Active TB Disease
If the TST is positive, further evaluation of the person by chest x-ray (CXR) and medical evaluation is required. Sputum smears for acid-fast bacilli (AFB), as well as epidemiological information and clinical and pathological findings, are evaluated to confirm or rule out active disease. Treatment of active disease usually entails the use of four drugs. First line antituberculosis agents that form the core of initial treatment include isoniazid (INH), rifampin (RIF), ethambutol (EMB), and pyrazinamide (PZA). For further information on treatment guidelines, please reference Figure 1 at: www.cdc.gov/mmwr/preview/mmwrhtml/rr5211a1.htm

Treatment: Latent TB Infection (LTBI) (not active)
Positive TST, Normal CXR, no signs and symptoms of active TB disease:

Adult: Treatment includes isoniazid (INH) 5 mg/kg (max 300 mg) daily for 9 months; 15 mg/kg twice or three times weekly (max 900 mg). Other optional regimens exist; however, the 9-month duration of daily INH therapy has been proven to be the most effective.

Isoniazid (INH) inhibits cytochrome P450 CYP2C9, 2C19 and 2E1, which can cause increased concentrations of phenytoin and carbamazepine. INH can also cause increases in concentrations of benzodiazepines (diazepam and triazolam, but not oxazepam). Common side effects are nausea, vomiting, loss of appetite, peripheral neuropathy, and liver damage.

It is recommended that isoniazid be taken on an empty stomach. However, if upset stomach is observed, it is preferable to give isoniazid with food rather than switching the medication.

Please visit http://dhfs.wisconsin.gov/tb/ for the most current information on TB in Wisconsin.

Continued from page 2

Thrombocytopenia, a decrease in platelet counts, is of greater concern because it can increase the risk of bleeding. Therefore, baseline and monitoring of CBC and platelet counts every six months is **recommended**. If a patient is undergoing warfarin therapy (anticoagulated), INR should be monitored as well.

Since VPA can cause liver failure, VPA therapy is contraindicated in patients with a history of alcoholism (cirrhosis of the liver) or acute hepatitis. Liver function tests (AST & ALT) should be performed at baseline and every six months.

Pancreatitis is a rare but life-threatening adverse reaction. If the patient complains of abdominal pain, nausea, vomiting and anorexia, the physician should be notified.

Monitoring parameters should include fluid and nutritional status, weight, sedation and dehydration, as well as whether behavior goals are met.

Drug interactions with VPA can occur, such as increasing levels of clonazepam, phenytoin and carbamazepine. Prozac (fluoxetine) can increase levels of VPA.

If there are medications you would like featured in this column, please send an email to Doug at **engleda@dhfs.state.wi.us**

Consultant's Corner

Doug Englebert *Pharmacy Practice Consultant PRQI*

This section will appear in each issue and will contain information that will answer your questions. If there is a topic about which you want more detailed information, please drop me an email at **engleda@dhfs.state.wi.us** and I'll research the topic.

1. How should an outbreak of scabies be handled in a nursing home (institutional setting)?

A system should be in place to identify and treat patients with suspected infection (scabies). The question many facilities have is whether to treat all residents or to test, then treat residents. When an outbreak occurs, many facilities prefer to treat all residents.

Scrapings are taken to identify scabies, but may give a false negative in the elderly population. Laboratory tests may show eosinophilia.

Scabies in the elderly may manifest atypical signs or symptoms due to skin aging and different immunological response. The elderly may present with three clinical variations of scabies: (1) cryptic cases with pruritis but minimal lesions; (2) scabies incognito, which is due to the inappropriate use of topical steroids that modifies the clinical picture by mimicking other dermatosis; and (3) crusted scabies, containing a large number of mites. In the elderly, atypical presentation includes papules clustered on the trunk instead of burrows, or burrows seen in unusual sites localized on the back, face, scalp, palms, soles, elbows, knees, or buttocks. Therefore, scabies in the elderly may be mistaken for psoriasis, eczema, exfoliative dermatitis, drug reactions, or contact dermatitis.

The Federal Drug Administration (FDA) approved treatment is 5% permethrin cream applied topically head to toe, and left on 8-14 hours before washing off. The treatment can be repeated in seven days. Otherwise, a single oral dose of ivermectin (0.2mg/kg) has been shown to be effective, and may be followed by another (0.2mg/kg) dose in eight days. Ivermectin is an approved drug, but is considered investigational for this use by the FDA. It is also recommended to wash all bedding and clothes in hot water and dry on high heat.

2. How do you know if a multi-dose inhaler still has drug left in the canister?

On a recent survey in a facility, a surveyor noticed that an as-needed albuterol inhaler had a prescription issue date that was six months old. The surveyor had a concern that the inhaler might no longer contain the active drug, even though a "spray" was still coming out. The surveyor asked how the facility would tell if the inhaler was empty and the response was that they would "float" the inhaler in a sink of water. The process of floating to determine if an inhaler is empty or not was something that actually was recommended in the past. However, the current recommendation is that individuals should count the doses administered. Each inhaler indicates how many doses (sprays) are available for delivery. Once that number of doses (sprays) has been reached, the inhaler should be discarded and a new one obtained. In facilities, the number of doses can be tracked using the medication administration record. In the community, individuals can use logbooks or other means to track the number of doses. This is very important for immediate-acting products like albuterol that are needed in emergency situations.

References are available upon request.